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## Introduction

The current study examines the effects of a psychological intervention that encourages emotional expression in ovarian cancer patients and their partners. Ovarian cancer patients (n=130) and their partners are recruited at Chicago area hospitals. Eligibility of patients includes ability to read and write in English, absence of any concurrent chronic condition or concurrent or prior history of psychiatric disorders, and having a spouse or partner. Patients are recruited between two months to five years after diagnosis, and after completion of active cancer treatment (e.g., surgery, radiation). They are also asked for permission to contact their spouse or partner for recruitment into the study. As it is our goal to recruit a partner for each patient to maximize effectiveness of the intervention, the only exclusion criteria for patients' partners will be inability to read and write in English or any psychiatric disorder that would preclude participation. Patients and their partners are randomly assigned to an intervention or a control group. Subjects in the intervention group are asked to write about their deepest thoughts and feelings regarding their cancer experience for 20 minutes each day for three consecutive days. The control group is asked to write about trivial non-emotional topics. Intervention Group: Subjects are told to write continuously for 20 minutes about their deepest thoughts and feelings about their cancer experience (spouses/partners will write about how they have been affected by the patient's illness), and about how it relates to other aspects of their lives, e.g., their family life, relationship with their spouse, sexuality, daily activities, work, social life, etc. The instructions are designed such that subjects will feel free to write about the aspects of their experience that are important to them. To encourage emotional expression, it is emphasized that their writing samples will be kept completely confidential and anonymous and will only be identified by the participant's number, not their name. The essays will later be processed by independent blind readers who have no knowledge of the participant's identity or group assignment. Finally, participants are told to not worry about style, grammar, or spelling and that no feedback will be provided to them regarding the contents of the essays. Control Group: Procedures follow standard protocols used in previous research. Subjects are asked to write for 20 minutes each day about a trivial non-emotional topic that is assigned to them (e.g., description of their routine daily activities). Subjects will be told to remain factual and not add any emotional content. All other procedures will be identical to the Intervention Group.

Outcome variables including psychological distress, quality of life, and physical symptoms are assessed at baseline and over a period of nine months after the intervention (one week, three, six, and nine months).

**Specific Aim I:** To examine the effectiveness of the emotional writing intervention for patients and their partners. **Specific Aim II:** To examine mechanisms for the effects of expressive writing. **Specific Aim III:** To begin to identify those individuals who will be most likely to benefit from this type of intervention.

## **Body**

### **Task 1: Preparation for the study (month 1 to 2):**

The research protocols have been developed including instructions for all aspects of the protocol and questionnaire packets for each assessment. Research assistants have been trained to administer all parts of the protocol including the intervention, all assessments, and debriefings.

### **Task 2: Data collection (month 2 to 36):**

Collaborating physicians are referring research subjects on an ongoing basis. Currently a total of 80 participants have been recruited into the protocol and are at various stages of the data collection process. We are continuing to receive referrals from our collaborators and are screening and recruiting subjects on a regular basis. The research assistants are conducting interviews and interventions and follow-up assessments are done at one week, 3, 6, and 9 months post-intervention as planned. We are keeping track of recruitment and subject follow-up using a computerized database (ongoing). Weekly research meetings are in place to deal with the day to day running of the project.

### **Task 3: Data processing (month 6 to 36):**

Data spreadsheets have been set up and all data currently collected have been entered. Data verification is conducted periodically to ensure accuracy of data processing.

### **Task 4: Data analyses (month 34-36):**

Preliminary data analyses have been conducted on the current sample (see results below).

### Key Research Accomplishments

- Research protocol and referral mechanisms are in place and continue to run as planned.
- A total of 80 subjects are enrolled in the study.
- Additional referrals are being obtained on an ongoing basis and patients are being screened for eligibility.
- Data entry and verification is conducted on an ongoing basis.
- Findings using this sample in combination with other data sets have been presented and published.
- Weekly research meetings are conducted.

### Reportable Outcomes

No reportable outcomes are available on the ovarian cancer sample alone so far, as we have not reached our target number of subjects. **Findings described below are based on a combination of the current study sample and other ongoing studies and are not reflective of coping with ovarian cancer specifically but rather gynecological and prostate cancers more generally.**

1. Emotional expression is an important means of coping with stressful experiences such as cancer. Social barriers to expression may have adverse effects. Research has suggested that men are less likely to express their emotions and have different patterns of social support compared to women. We examined whether male cancer patients have a lower tendency to express emotions, are less likely to perceive social barriers to expression, and are differentially affected by social barriers from different support sources as compared to women. Questionnaires were administered to 41 gynecological cancer patients and 41 prostate cancer patients using baseline data from the intervention project. There was a trend towards greater emotional expressivity in women as compared to men but no significant gender differences in perceptions of social constraints from spouse/partner or others. Multiple regression analyses revealed that men experienced significantly greater distress in association with social constraints from their spouse/partner than did women. Men may be more vulnerable to social barriers to expression than previously assumed. Gender differences in emotional expressivity may be less important than the social context in which expression takes place.

**Zakowski, S.G., Schwab, C., Krueger, N., & Laubmeier, K., Garrett, S., Flanigan, R., Johnson, P. (2003).** Social barriers to emotional expression and their relations to distress in male and female cancer patients. British Journal of Health Psychology.

2. Individuals facing the stress of cancer often rely on their social networks to allow them to express their thoughts and emotions in an effort to cope with their illness. However, these efforts are sometimes met with negative responses that inhibit their emotional expression (i.e., social constraints) which in turn may lead to increased distress. We hypothesized that expressive writing would buffer the distress associated with such social barriers. Patients diagnosed with cancer (N=103) within the past five years were

randomly assigned to an experimental group, who wrote about their deepest thoughts and emotions about their cancer experience for 20 minutes a day for three consecutive days, or a control group who wrote about non-emotional topics. Patients (49% male) were ages 25-84, 95% Caucasian, 81% married, and had been diagnosed with prostate or gynecological cancer. They completed the Brief Symptom Inventory (BSI, distress) at baseline and 3 months post-intervention (Time 2), and the Social Constraints Scale (SCS) at baseline. Multiple regression analysis regressing Time 2 distress on baseline distress, SCS, Group, and SCS x Group revealed a significant SCS x Group interaction ( $p=.015$ ) indicating that expressive writing buffered the distress associated with social constraints. These findings suggest that cancer patients whose social network responds negatively to their efforts to express their emotions regarding their cancer may be most likely to benefit from a writing intervention. Patients who encounter few such social barriers may have less of a need for additional emotional outlets. This underscores the importance of matching psychological interventions to patients' needs.

**Zakowski, S.G., Ramati, A., Morton, C., Johnson, P., & Flanigan, R.** (in press). Written emotional disclosure buffers the effects of negative social interactions on distress in cancer patients. Health Psychology

3. Repressive coping marked by a dispositional tendency to suppress disclosure of negative emotions may have adverse effects including increased physiological responses to stressors and progression of disease in cancer patients. We examined whether repressors are less likely to benefit from an expressive writing intervention compared to non-repressors (classified according to Marlowe-Crowne Social Desirability Scale (MCSDS)/Taylor Manifest Anxiety Scale (TMAS)). Patients diagnosed with prostate or gynecological cancer ( $N=109$ ) within the past five years were randomly assigned to an experimental group, who wrote about their deepest thoughts and emotions about cancer for 20 minutes a day for three days, or a control group who wrote about non-emotional topics. Patients (51% female) were between the ages of 25-84, 95% Caucasian, 81% married. They completed the Brief Symptom Inventory (BSI, distress) at baseline and 3 months post-intervention (Time 2), the TMAS, and the MCSDS. Multiple regression controlling for baseline distress revealed main effects for social desirability and trait anxiety predicting Time 2 distress ( $p's<.01$ ). A TMAS x MCSDS x Group interaction ( $p<.04$ ) revealed that repressive copers (high desirability/low anxiety) benefited the least from the intervention, whereas truly low anxious patients and patients high on anxiety and social desirability benefited the most. Repressed copers may prefer other means of coping with stress and thus not benefit from interventions that focus on emotional expression. Individual differences should be considered when implementing interventions.

These findings were presented at the Society of Behavioral Medicine conference, Washington, D.C., April 2002.

4. Another individual difference variable of interest is neuroticism. We examined whether individuals high on trait neuroticism, characterized by chronic display of negative affect, benefit from interventions that focus on emotional expression of negative events or whether these exacerbate their negative affect. We examined depressive



symptoms (BSI, POMS) and intrusive thoughts about cancer (IES) in 106 male and female cancer patients before (Baseline) and six months (Follow-up) following the emotional expression intervention. Patients (age:  $M=60$ , 53% female, 78% married, time since diagnosis:  $M=1.5$  years) were randomly assigned to an expression and a control condition. Multiple regression regressing Depression at 6-month Follow-up on Baseline Depression, Neuroticism (NEO-FFI), Group, and Neuroticism  $\times$  Group revealed a significant interaction ( $p's < .01$ ). Participants low on Neuroticism who were in the expression condition experienced decreased depression at follow-up compared to controls. However, those high on trait Neuroticism reported increased depression after the intervention. Interestingly, they also exhibited increased intrusive thoughts as indicated by a Neuroticism  $\times$  Group interaction ( $p=.035$ ). It has been theorized that emotional expression may exert its benefits by enhancing cognitive processing of stressful experiences resulting in long-term reductions in intrusive thoughts and concomitant decreases in negative affect. According to our data this was the case for individuals low on Neuroticism, however expression had the opposite effect on high neurotic individuals who responded with increased intrusive thoughts and depression. It is thus essential to take personality differences into account when administering emotional expression interventions to individuals dealing with major life stressors. These findings were presented at the International Society of Behavioral Medicine, Helsinki, Finland, August 2002.

5. We examined predictors of quality of support provision among spouses of gynecological cancer patients. Forty-eight gynecological patients and their spouses were assessed at one time-point for personality variables, social constraints, and distress. We found that spouses' neuroticism was significantly associated with social constraints (as perceived by the patient). This association was partly explained by spouses' higher levels of distress and social constraints from an outside network. These findings suggest that a spouse's personality trait of Neuroticism may contribute to their inability to provide support to a patient due to the heightened levels of distress they are experiencing. These findings were presented at the APS meeting in April 2003.

6. Life-threatening events challenge one's schema about personal vulnerability. Emotional expression is associated with adjustment to such events possibly by assimilating the information of vulnerability with existing cognitive schemas. Assimilation may occur by changing the meaning of the threat and reducing the individual's sense of vulnerability. We examined whether emotional disclosure about patients' cancer experience would result in reductions in perceptions of vulnerability (e.g., risk of recurrence). Gynecological ( $n=69$ ) and prostate cancer ( $n=69$ ) patients who had completed active cancer treatment, diagnosed within the past 5 years were randomly assigned to write about their emotions regarding their cancer experience or about their daily activities (controls). They completed a Perceived Risk Scale (PRS) and Impact of Events Scale at baseline, 3 and 6 months post-writing. Groups were comparable on demographic and medical characteristics. The PRS, developed for this study, consists of 2 subscales, perceived risk for poor cancer prognosis and worry about risk. Repeated measures ANCOVA revealed a significant time main effect ( $p<.05$ ) and a significant condition by time interaction ( $p=.02$ ). Perceptions of risk increased over time but this



was moderated by condition. Patients who wrote about their cancer showed less of an increase in risk perceptions than controls. Risk perceptions were significantly correlated with worry and intrusive thoughts about cancer ( $r$ 's = .38 to .48) suggesting that perceptions of risk play a significant role in psychological adjustment to cancer. Neither worry nor intrusive thoughts changed as a function of writing condition. Emotional disclosure buffered the increase in perceived risk that patients were experiencing over time. Patients' vulnerability may increase as they are no longer under constant medical supervision. Emotional disclosure may be an effective intervention to prevent this increase.

These findings were presented at the Third International Conference on the (Non) Expression of Emotions in Health and Disease in Tilburg, The Netherlands, October 2003.

### New Findings Since 2003 Annual Report

7. Social barriers to expression (i.e. social constraints) from one's social support network appear to inhibit cognitive processing following diagnosis and treatment of cancer. Cross-sectional research has reported differential effects of constraints on intrusions and distress for men and women with cancer, such that constraints from spouses have been shown to affect men more strongly than women. These findings suggest that men may rely on their spouses more heavily than women, while women may more often seek support outside their marriages. The present study sought to support these findings prospectively, and to more specifically examine amount of talking about cancer with spouse versus others. Prostate ( $n = 98$ ) and gynecological ( $n = 138$ ) cancer patients completed questionnaires on social constraints from and amount of talking about cancer with spouses and others, intrusions and distress at two time points.  $T$ -tests and hierarchical regression analyses were used to test hypotheses. A significant Constraints-Spouse effect emerged [ $Beta = 1.02, p < .01$ ], such that higher constraints were associated with greater distress. More importantly, a significant Constraints-Spouse  $\times$  Gender effect was found [ $Beta = -1.12, p < .01$ ] such that, for men, constraints predicted 14.2% of the variance in distress, whereas for women, it predicted for only 2.6%. A nonsignificant trend for Constraints-Others  $\times$  Gender emerged for intrusions [ $Beta = -.37, p = .08$ ] such that constraints were more strongly related to intrusions for women than men. Lastly, women reported talking about their cancer with others more than men ( $p < .01$ ), whereas no gender differences were found for talking with spouses ( $p = .25$ ).

These findings were presented at the conference of the Society of Behavioral Medicine in Baltimore, MD, in March 2004.

8. Written emotional disclosure of trauma has been associated with improvements in a person's psychological adjustment. Pennebaker developed a text analysis tool (LIWC) to determine if language use (e.g., cognitive word usage) may be related to these benefits. Another potential method of text analysis looks at level of emotional awareness (LEA). Emotional awareness is the capacity to be consciously aware of emotion and to constructively use emotional information. Lane and Schwartz (1987) proposed that EA undergoes 5 levels of increasing structural transformation and organization in emotional experience. Using a novel application of the LEA model, we examined whether patients

exhibiting a higher LEA in their essays reported fewer intrusive cancer-related thoughts (INTR) post-writing. We also compared the 2 text analysis methods (LEA vs. LIWC) in predicting INTR post-writing. Gynecological ( $n = 20$ ) and prostate cancer patients ( $n = 20$ ) wrote for 20 minutes for 3 consecutive days about their emotions regarding their cancer experience. INTR was assessed at baseline, 1-week, 3-months and 6-months post-writing. Essays were scored and rated on LEA. LIWC analysis was conducted to assess the change in cognitive words between the 1<sup>st</sup> and 3<sup>rd</sup> day of writing. Regression analyses controlling for baseline INTR showed that LEA accounted for 4.74% ( $p = 0.062$ ), 4.87% ( $p = 0.083$ ), and 4.64% ( $p = 0.022$ ) of the variance in INTR at the 3 follow-up points respectively. Cognitive words, as assessed by the LIWC, accounted for 4.68% ( $p = 0.079$ ), 4.81% ( $p = 0.108$ ), and 3.82% ( $p = 0.833$ ) in INTR respectively. Results suggest that methods focusing more on essay content may be better predictors of writing benefits. A greater ability to recognize and express emotions (higher LEA) may aid in the adjustment to a trauma via written disclosure. This preliminary investigation demonstrates the usefulness of a new application of the LEA model in the analysis of emotional content of personal essays.

These findings were presented at the Third International Conference on the (Non) Expression of Emotions in Health and Disease in Tilburg, The Netherlands, October 2003.

9. Emotional disclosure has been shown to be beneficial in individuals dealing with a variety of traumatic and stressful experiences. While little is known about gender differences in the effects of disclosure, it has generally been found that women are more likely to use emotional expression as a form of coping with stress than are men. It is therefore often assumed that men may be less likely to benefit from emotional disclosure. The present study investigated the effects of written emotional disclosure in male and female cancer patients. Using Pennebaker's writing paradigm, 80 gynecological cancer patients and 84 prostate cancer patients were randomly assigned to two conditions. In the disclosure condition participants wrote about their emotions regarding their cancer experience for 20 minutes a day for three consecutive days. Controls wrote about their daily activities. Moods (POMS) were assessed at baseline, three, and six months post-writing. A 2 (gender) by 2 (condition) repeated measures ANOVA revealed a significant gender by condition interaction ( $p < .01$ ). Inspection of means showed that while women exhibited little change in response to the disclosure intervention, men reported reduced mood disturbance at six months post-intervention. Women may have other emotional outlets possibly in their social environment that mask the effects of writing. The results suggest the value of implementing interventions that provide male cancer patients with a means to express their emotions.

These findings were presented at IPOS, Denmark, August 2004.

10. Past research has provided evidence that written emotional expression after experiencing a traumatic event results in decreased distress and improved mental health. However, other research has suggested that if the emotional disclosure occurs immediately following the stressful event the effects to the individual are either not helpful or detrimental. To date, little research has examined the specific point in time, following trauma, where written emotional expression is most beneficial. This study

to the time since diagnosis of cancer). Participants included 39 Prostate and 38 gynecologic cancer patients who were recruited post-treatment within five years of their cancer diagnosis. The mean age for participants was 58.9 years and 94.8% of participants were Caucasian. The stage of diagnosis ranged was reported for % of the patients with gynecological cancer and scores ranged from 1 to 4 (Stage 1 = %, Stage 2 = %, Stage 3 = %, Stage 4 = %). Gleason scores (GS) were available for 56% of patients with prostate cancer and ranged from 4 to 9 (GS4 = 5%, GS5 = 5%, GS6 = 55%, GS7 = 23%, GS8 = 9%, GS9 = 5%). Participants were contacted to participate by both phone and mail. After completing baseline measures of mood assessment (Profile of Mood Scale, POMS), participants were asked to write about their cancer experience for twenty minutes a day for three consecutive days in the privacy of their own homes. The POMS was again administered 3 and 6 months following the writing intervention. Days since diagnosis ranged from 61-1,837. Early (61-285 days), middle (286-544 days) and late (over 544 days) intervention groups were formed via tertile splits on days from diagnosis to commencement of the emotional writing intervention. Between-groups baseline POMS differences were not found ( $p=.60$ ). A 3 (Time of Intervention: early, middle, late)  $\times$  3 (Assessment: baseline, 3-months, 6-months) mixed-model ANOVA revealed a significant Time of Intervention  $\times$  Assessment effect ( $p<.05$ ). Simple effects analyses revealed decreases in total mood disturbance (as measured by POMS) from baseline to 3-months ( $p=.06$ ), 3- to 6-months ( $p=.07$ ) and baseline to 6-months ( $p=.04$ ) for the early intervention group. Significant effects were, however, not evident for middle or late intervention groups for any epoch. These results suggest that time of intervention does affect the level of benefit gained from emotional expression through writing. Specifically, there is evidence that emotional writing tasks which take place between 60 and 285 days after cancer diagnosis are more beneficial than those which occur after this time span. Additional research needs to examine the effects of writing tasks which take place immediately after a stressful event has occurred (i.e., from 0-60 days). These findings were presented at the APS meeting in Chicago, Illinois, in March 2004.

### Conclusions

The research protocol is running as planned and no modifications are necessary at this point. Findings reported on the present sample in combination with other data sets are summarized above. In comparison to female cancer patients, prostate cancer patients report greater distress in association with social constraints; expressive writing is associated with lower perceived threat of recurrence; expressive writing buffers the negative effects of social constraints; repressive copers and neurotics benefit less from expressive writing; men benefit more from writing; time of intervention relative to diagnosis of disease determines its benefits; spouses' neuroticism interferes with social support given to the patient. We will continue to conduct analyses to address the other study aims as more data are collected.

**Personnel:** Sandra Zakowski and Virginia Boquiren are receiving pay from the research effort.

## References

- Boquiren, V.M.,** Herzer, M., & Zakowski, S.G. (2003, October). Two methods of text analysis in predicting psychological outcomes of written emotional disclosure. Presented at the Third International Conference on the (Non) Expression of Emotions in Health and Disease, Tilburg, The Netherlands.
- Fidler, A.M.,** Dittoe, S.E., Quartana, P.J., & Zakowski, S.G. (2004, March). Evidence of the moderating effect of time of intervention on the benefit of written emotional expression. Presented at the meeting of APS, Chicago, Illinois.
- Quartana, P.J.,** Herzer, M., & Zakowski, S.G. (2004, March). A prospective analysis of the effects of spousal constraints and distress in prostate and gynecologic cancer patients. Presented at the annual meeting of the Society of Behavioral Medicine, Baltimore, Maryland.
- Zakowski, S.G.,** Fidler, A.M., Herzer, M., & Dittoe, S.E. (2004, August). Differential effects of emotional disclosure in male and female cancer patients. Presented at IPOS, Denmark.
- Zakowski, S.G.,** Morton, C., Ramati, A., & Felch, N. (2002). Expressive writing moderates the effects of negative social interactions on distress in cancer patients. Psychosomatic Medicine, 64, 102.
- Zakowski, S.G.,** Ramati, A., Morton, C. (2002, August). Who benefits from emotional expression: An examination of personality differences among cancer patients. Presented at the Seventh International Congress of Behavioral Medicine, Helsinki, Finland.
- Zakowski, S.G.,** Ramati, A., Morton, C., Felch, N., Flanigan, R., Garrett, S., & Johnson, P. (2002, March). Individual differences moderate the effects of an emotional disclosure intervention on distress in cancer patients. Presented at the annual meeting of the Society of Behavioral Medicine, Washington, D.C.
- Zakowski, S.G.,** Ramati, A., Morton, C., Johnson, P., & Flanigan, R. (in press). Written emotional disclosure buffers the effects of negative social interactions on distress in cancer patients. Health Psychology.
- Zakowski, S.G.,** Schwab, C., Krueger, N., & Laubmeier, K., Garrett, S., Flanigan, R., & Johnson, P. (2003). Social barriers to emotional expression and their relations to distress in male and female cancer patients. British Journal of Health Psychology.
- Zakowski, S.G.,** et al. (2003, October). Effects of emotional expression on perceptions of personal vulnerability in cancer patients. Presented at the Third International Conference on the (Non) Expression of Emotions in Health and Disease, Tilburg, The Netherlands.



## Social barriers to emotional expression and their relations to distress in male and female cancer patients

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**Objective.** Emotional expression is an important means of coping with stressful experiences such as cancer. Social barriers to expression may have adverse effects. Research has suggested that men are less likely to express their emotions and have different patterns of social support compared to women. We examined whether male cancer patients have a lower tendency to express emotions, are less likely to perceive social barriers to expression, and are differentially affected by social barriers from different support sources as compared to women.

**Design.** Questionnaires were administered to 41 women and 41 men using a cross-sectional study design.

**Method.** Patients diagnosed with gynaecological or prostate cancer within the past 5 years completed questionnaires on moods, intrusive thoughts, social constraints and emotional expressivity.

**Results.** There was a trend towards greater emotional expressivity in women as compared to men, but no significant gender differences in perceptions of social constraints from spouse/partner or others. Multiple regression analyses revealed that men experienced significantly greater distress in association with social constraints from their spouse/partner than did women.

**Conclusion.** Men may be more vulnerable to social barriers to expression than previously assumed. Gender differences in emotional expressivity may be less important than the social context in which expression takes place.

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The expression of emotions holds an important place in psychology and has long been thought to be associated with psychological and somatic benefits. When confronted with a traumatic event, such as the diagnosis and treatment of cancer, the majority of individuals want to talk about their experience, suggesting a pervasive need for emotional support that allows emotional expression (Rimé, 1995). However, such support may be unavailable and supportive others may have negative responses to the victim's need for expressing emotions. It is generally believed that women are more likely than men to seek such support and to express their emotions when dealing with a stressful experience. It could therefore be assumed that they are also more sensitive to social barriers to emotional expression and to be adversely affected by them. While this may be the stereotype, there is some evidence to suggest that this may not always be the case and that the impact of such negative social support may depend on its source. The present study examined gender differences in emotional expressivity and perceptions of social barriers to emotional expression from spouse versus other sources. It further examined whether gender moderated the relations between perception of such barriers and distress in a sample of 82 patients with gynaecological or prostate cancer.

#### ***Emotional expression and social support***

Emotional expression has been found to be associated with a variety of mental and physical health benefits. For example, a large number of studies have shown that individuals who write about their emotions regarding traumatic experiences exhibit enhanced psychological and physical well-being (e.g., Pennebaker, 1997, for a review). Emotionally expressive coping has also been associated with better psychological adjustment to breast cancer and enhanced physical health (Stanton *et al.*, 2000). Furthermore, women with high emotional expressivity, a dispositional tendency to outwardly display one's emotions (Kring, Smith, & Neale, 1994), were found to report lower distress in relation to intrusive thoughts about breast cancer (Zakowski, Valdimarsdottir, & Bovbjerg, 2001). Emotional inhibition, on the other hand, may have adverse effects both in healthy individuals and individuals with chronic illnesses, most notably cancer (e.g., Gross, 1989).

The benefits of emotional expression are often obtained by talking to members of one's social support network. Indeed, one of the main functions that social support serves is to provide the individual with the opportunity to discuss his/her feelings. Social support is an important predictor of mental and physical health; for example, individuals with higher support are healthier and have lower mortality rate from all causes (e.g., Berkman, Leo-Summers, & Horwitz, 1992; House Landis, & Umberson, 1988; Orth-Gomer, Rosengren, & Wilhelmsen, 1993). Among cancer patients, emotional support has been associated with lowered distress, fewer mood disturbances and enhanced physical recovery (e.g., Bloom, 1986; Roberts, Cox, Shannon, & Wells, 1994).

#### ***Negative social interactions and social constraints on expression***

However, one's social network is not always helpful in times of crisis. In fact, behaviours intended to be supportive may be perceived as unhelpful by the patient and may thus have negative consequences. Such negative social interactions can take on different forms, such as criticism, giving unsolicited advice, forced cheerfulness, avoidance or withdrawal (Dakof & Taylor, 1990; Manne, 1998; Manne, Alfieri, Taylor, & Dougherty, 1999; Wortman, & Dunkel-Schetter, 1987; Wortman & Lehman, 1985). Such negative



social behaviours may stem from various sources, including family members, friends, co-workers and spouses or partners, and the importance of these behaviours in the patient's psychological adjustment may depend on that source.

Much of the research on the effects of negative social interactions in cancer patients has focused on the marital relationship. Marital partners are often the most involved in the patient's illness and are called upon for provision of caregiving and emotional support. However, the demands put on the spouse are often overwhelming and spouses may experience significant distress themselves (e.g., Northouse, 1990). This may result in negative responses, such as criticism and avoidance, which have been associated with negative moods in patients diagnosed with various types of cancer (e.g., Manne, Pape, Taylor, & Dougherty, 1999; Manne, Alfieri, Taylor, & Dougherty, 1999). In fact, such negative behaviours may be a more important predictor of the patient's psychological adjustment than positive supportive behaviours. Negative social interactions can also take the form of thwarting the patient's efforts to express his/her emotions about the illness. Such constraints often arise out of the genuine concern of others that talking about the cancer may be detrimental to the patient, resulting in attempts to distract the patient, minimize the problem, or avoid the topic of cancer altogether (e.g., Dakof & Taylor, 1990; Wortman & Dunkel-Schetter, 1987). These efforts by members of the social support network to protect the patient seem misguided, however, as patients often report this to be a source of distress when they feel that their efforts to disclose their true emotions are met with resistance (e.g., Dakof & Taylor, 1990; Manne, Pape, *et al.*, 1999; Ramati & Zakowski, 2001).

### **Gender differences in emotional expression and need for support**

It is widely held that men are less likely than women to express their emotions. Studies have found such differences using a variety of measures including self-report, observer ratings of expressive behaviours and electromyography (e.g., Greenwald, Cook, & Lang, 1989; Gross & John, 1995; Kring & Gordon, 1998; Kring *et al.*, 1994). However, what needs to be examined is the question of whether men are also less likely than women to perceive barriers to emotional expression from their spouse and other members of their support network and whether they are less likely to be adversely affected by such negative social behaviours. Regarding the first question, one may argue that given that men are generally viewed as being less likely to express their emotions, they may also be less likely to receive emotional support that allows them to do so. Conversely, if they do not want to express their emotions they may also be less likely to *perceive* any barriers to expression, as they may not consider such negative behaviours on the part of others to be a problem. Previous research on perceptions of support is mixed. While some studies have found no gender differences in perceived social support or conflict from spouse (e.g., Baider *et al.*, 1996; Manne, Alfieri *et al.*, 1999; Manne, Pape *et al.*, 1999; Turner, 1994), others have reported women to be less satisfied with the marital relationship and to perceive open communication with their spouse to be more difficult when dealing with the stress of cancer (e.g., Keller, Henrich, Sellschopp, & Beutel, 1996; Northouse, Mood, Templin, Mellon, & George, 2000). However, gender differences in perceptions of social barriers to expression have not been examined directly.

With respect to the second question, the relations between perceived barriers and distress may depend on the source of negative social interactions. The impact of negative social interactions may be especially detrimental if they stem from a person who presents a major or exclusive source of support to the support recipient. Men have



been shown to derive the greatest emotional support from their spouse or partner, while women tend to be more likely to draw on other sources of support. In general, men derive more positive support from their spouses than do women across all age groups (Lynch, 1998). Furthermore, it has been found that male cancer patients more often confide exclusively in their spouse, while female patients tend to confide in a larger number of people, including family and friends (Harrison, Maguire, & Pitceathly, 1995). This also appears to be the case in non-patient populations (e.g., Edwards, Nazroo, & Brown, 1998; Turner, 1994).

It may thus be argued that men may be more likely to be adversely affected by withdrawal of support or negative behaviours from the spouse or partner, whereas women may be more likely to suffer if they experience negative social interactions from other sources. Research has mostly focused on the effects of positive support and findings have been mixed on this issue. One study examined the relations between spousal emotional support and distress in cancer patients and found a significant negative correlation for male, but not for female, patients, suggesting that only men were adversely affected by low emotional support from their spouse (Keller *et al.*, 1996). In the laboratory, men who were supported by their partner in anticipation of a stressor had lower levels of cortisol (an indication of lower stress), whereas women's cortisol levels were not affected by their partner's support (Kirschbaum, Klauer, Filipp, & Hellhammer, 1995). In addition, the fact that men tend to draw greater health benefits from marriage than do women and that men suffer more as a result of the death of their spouse is often explained by the fact that the wife is a man's sole confidante (e.g., Berkman & Syme, 1979; Stroebe & Stroebe, 1983). Men may thus be more distressed by negative spousal support than are women. Not all findings are consistent with this idea, however. Turner (1994), for example, found that women reported higher depression in association with marital conflict (disagreements with spouse) than did men. To date, no studies have examined gender differences in the relations between barriers to emotional expression and distress.

Finally, when examining these associations it may also be important to take gender differences in dispositional emotional expressivity into consideration. For example, individuals who have a high need for emotional expression may not only be more likely to perceive social barriers to expression but may also be more adversely affected by these barriers. Expression may be their predominant coping mechanism, and when this expression is blocked by an unsupportive social environment, psychological adjustment to the stressful event may be inhibited.

The present study examined emotional expressivity, perceived barriers to emotional expression about cancer (social constraints), and distress (general moods and intrusive thoughts about cancer) in 82 men and women diagnosed with cancer. Based on the literature reviewed above, we examined the following questions regarding emotional expression:

- (1) Are female cancer patients more emotionally expressive than male patients?
- (2) Do male and female cancer patients differ with respect to their perceptions of social constraints from spouse/partner and other individuals in their support network?
- (3) Do men experience more distress in relation to social constraints from spouse/partner than do women?
- (4) Do women experience more distress in relation to social constraints from supportive others (other than their spouse/partner) than men?

- (5) Can these putative gender differences be explained by differences in emotional expressivity?

## Method

### Participants

Patients who had been diagnosed with cancer within the past 5 years were recruited from oncology clinics in the Chicago and Milwaukee metropolitan areas for a broader study examining the effects of psychosocial factors and individual differences on quality of life. The present data are taken from assessments on 41 men diagnosed with prostate cancer and 41 women with gynaecological cancer. One male patient was excluded from data analyses because his scores were over three standard deviations above the mean on three of the main study variables, thus reducing the final *N* to 81. Gynaecological cancers included endometrial (41.5%), ovarian (29.3%), cervical (14.6%), fallopian (2.4%), vulvar (2.4%) and trophoblastic disease (2.4%), and three patients had more than one type of cancer (7.3%). Gynaecological cancer ranged from Stage 1 to Stage IV diagnoses, with the majority of patients (53.7%) diagnosed with Stage I disease (we were unable to ascertain disease stage for six of the patients). Prostate cancer cases were graded according to a Gleason score (a measure of the degree of malignancy of the cancer cells which can range from 2 to 10) which we were able to verify for 31 of the participants. Gleason scores in the present sample ranged from 3 to 8 with the majority of patients diagnosed as Stage 6 (37.5%) or Stage 7 (25%). Patients were considered eligible for the study if they had a first time diagnosis of prostate or gynaecological cancer, had completed active cancer treatment, had no evidence of psychiatric problems or any current life-threatening disease other than cancer, and were able to read and write fluently in English. In addition, for inclusion in the present data analyses, participants had to have a current spouse or sexual partner. Participants were between 25 and 81 years old ( $M = 59.01$ ,  $SD = 10.78$ ), 43% had a college degree, 57% were currently employed outside the home, 94% were Caucasian and 96% were currently married. Patients were diagnosed between 2 months to 5 years prior to study participation ( $M = 1.27$  years,  $SD = 1.13$ ). They had received various treatments for their cancer including surgery (85.2%; of the gynaecological cancer patients the majority underwent hysterectomy or hysterectomy with oophorectomy ( $n = 34$ , 83%), or other ( $n = 3$ , 7.3%); of the prostate cancer patients the majority underwent radical prostatectomy ( $n = 31$ , 77%) [information on type of surgery was not available for two of the gynaecological cancer patients], chemotherapy (23.5%) and radiation therapy (19.8%).

### Procedures

Patients who had been diagnosed with cancer within the past 5 years were identified by their treating physician. Those who indicated interest in study participation were contacted by a member of the research group who explained the study and screened the patient for eligibility. Of the patients who were initially screened for the study, 24% declined participation. The most common reason cited was lack of interest or time (71%), being too ill (10%) or dealing with other problems (5%). Participants gave written informed consent and completed several questionnaires which were sent by mail. Completed forms were returned to the research office in self-addressed, stamped

envelopes that were provided to the participants. The questionnaires that were used for the present analyses are described below.

### **Measures**

#### *Demographic questionnaire*

This face-valid questionnaire includes questions on basic demographic information including age, ethnic group, education and marital status.

#### *Medical history questionnaire*

Patients were asked to complete basic medical information with respect to their cancer including date of diagnosis, tumour site, treatments received and other concurrent chronic health problems. This information was verified via patients' medical charts.

#### *Social constraints (Lepore & Ituarte, 1999)*

This is a 15-item scale assessing participants' perceived inadequacy of social support resulting in a reluctance to express thoughts and feelings about a specific stressor, in this case their cancer experience. Examples of items include 'How often did your spouse avoid you?', 'How often did your spouse minimize your problems', 'How often did your spouse tell you to try not to think about your cancer?', and 'How often did your spouse make you feel as though you had to keep feelings about your cancer to yourself, because they made him/her feel uncomfortable?' Previous research shows an internal consistency of  $\alpha = .88-.92$  (Lepore & Ituarte, 1999). Two versions of this form were included in the present study, one asking about constraints from the spouse or partner, the second asking about constraints from individuals other than the spouse/partner. Reliability for the two scales in the present study was  $\alpha = .79$  and  $.73$  for the 'spouse/partner' and the 'other' form, respectively. Participants were asked to rate each item on a 4-point scale regarding how they felt during the past week. Possible scores on this questionnaire range from 15 (low constraints) to 60 (high constraints). This questionnaire has been used with cancer patients (Lepore & Ituarte, 1999).

#### *Emotional Expressivity Scale (EES; Kring et al., 1994)*

The EES assesses a dispositional tendency to outwardly display emotions. This is a general measure of emotional expression in that it is not specific to any particular type of emotion (anger, sadness, etc.), valence (positive or negative) or mode of expression (e.g., verbal, non-verbal). Participants rate the extent to which each of 17 statements applies to them on a scale from 1 (never) to 6 (always) with a possible range of total score values from 17 (low expressivity) to 102 (high expressivity). The scale was developed and validated in several studies using college students and community residents (Kring et al., 1994). Convergent and discriminant validity as well as criterion validity have been established in a number of studies. Reliability was found to be acceptable with an average  $\alpha$  of .91 across seven administrations and a 4-week test-retest reliability of .90 (Kring et al., 1994).

#### *Profile of Mood States (POMS; McNair, Lorr, & Droppelman, 1971)*

This questionnaire assessed participants' moods by asking them to rate each of 65 adjectives on a Likert-type scale. The POMS yields six subscales (tension-anxiety,

depression-dejection, anger-hostility, vigour activity, fatigue-inertia, confusion-bewilderment) and a total mood disturbance (TMD) score. Test-retest reliability for each of the subscales ranges from  $r = .65$  to  $.74$ , and validity has been demonstrated (McNair *et al.*, 1971). Only the TMD score was used in the present analyses. Possible TMD scores range from 0 to 260. Participants were asked to rate how they felt 'in the past week including today'. This scale is used widely as a measure of current distress and has been used extensively with cancer patients.

*Impact of Events Scale (IES; Horowitz, Wilner, & Alvarez, 1979)*

This scale assessed frequency of intrusive thoughts and avoidance 'over the past week including today'. The intrusive thoughts subscale was used for the present study. The questionnaire was designed to be anchored to a specific context, which in the case of this study was cancer. Frequency on each item is endorsed as 0 = not at all, 1 = rarely, 3 = sometimes and 5 = often. The possible scores for the intrusive thoughts subscale range from 0 to 35. Test-retest reliability for this subscale is acceptable ( $r = .89$ ) (Horowitz *et al.*, 1979). The IES has been used in previous studies examining cancer-specific distress (Schwartz, Lerman, Miller, Daly, & Masny, 1995; Zakowski *et al.*, 1997).

## Results

First, we examined relations between background variables (demographic and medical information) and major study variables (see Table 1). Significant differences by gender were observed on age and education. Men were significantly older and were more likely to hold a college degree. Medical data showed that women were significantly more likely to have undergone surgery to treat their cancer. None of the other medical or demographic variables showed significant gender differences. Age was significantly negatively correlated with total mood disturbance (TMD) scores, intrusive thoughts, social constraints from partner, social constraints from others, and emotional expressivity (see Table 2). Thus, age was used as a covariate as it may account for any gender differences observed in study variables. Being employed outside the home was also associated with higher emotional expressivity scores,  $F(1, 78) = 4.02, p < .05$ . None of the other background variables were significantly associated with any of the study variables including emotional expressivity, social constraints, mood disturbance and intrusive thoughts (see Table 2 for correlations of all study variables).

To examine the first two questions regarding gender differences on expressivity and perceptions of social constraints, analysis of covariance (covarying for age) was used. A trend for general emotional expressivity was observed,  $F(1, 78) = 3.7, p = .058$ , with women exhibiting higher self-reported expressivity. There were no significant differences in perceptions of constraints from either source (see Table 3 for means by gender on all study measures).

Multiple regression analyses were conducted to examine whether men and women had different levels of distress as a function of social constraints (see Tables 4 and 5). Social constraints scores were first centred around 0 (Aiken & West, 1991). First, we examined social constraints from spouse/partner. Age was entered in the first step, followed by gender in the second step, social constraints in the third, and finally the cross-product of social constraints by gender. Using TMD on the POMS as a dependent variable, significant main effects for age and social constraints from spouse were observed, accounting for 5% and 14% of the variance, respectively. The interaction of

**Table 1.** Demographic and medical data by gender

	Women (N = 41)	Men (N = 40)	p value
Demographics			
Age	55.05 (12.22)	63.01 (7.22)	<.001
Education (% college degree)	22%	65%	<.001
Marital status (% currently married)	98%	95%	n.s.
Employment (% employed outside the home)	57%	57%	n.s.
Ethnicity (% Caucasian)	95%	92%	n.s.
Medical history			
Surgery	92.7%	77%	<.05
Time since diagnosis in years	1.30 (1.08)	1.23 (1.19)	n.s.
Other chronic illnesses	2.5%	7.7%	n.s.

**Table 2.** Zero-order correlations among main study variables

	1	2	3	4	5	6
1. Age						
2. Time since diagnosis	.19					
3. Social constraints (partner)	-.26*	-.15				
4. Social constraints (other)	-.41**	-.15	.50**			
5. POMS	-.23*	-.14	.40**	.41**		
6. Intrusive thoughts	-.26*	-.08	.20	.44**	.53**	
7. Emotional expressivity	-.24*	-.01	.03	.05	-.12	.01

\* $p < .05$ , \*\* $p < .01$ .**Table 3.** Means (SDs) of independent and dependent variables by gender

	Women (N = 41)	Men (N = 40)	p value
Emotional expressivity	68.66 (11.21)	62.05 (11.61)	.058
POMS (TMD)	42.56 (21.98)	45.75 (31.21)	n.s.
Intrusive thoughts	6.63 (6.95)	7.72 (7.74)	n.s.
Social constraints (partner)	23.44 (7.39)	21.40 (5.92)	n.s.
Social constraints (other)	23.32 (7.90)	20.42 (6.10)	n.s.

Notes: POMS = profile of mood states; TMD = total mood disturbance.

constraints  $\times$  gender was also significant, accounting for an additional 5% of the variance in mood. The analysis was repeated using intrusive thoughts about cancer as a dependent variable. Age accounted for a significant 6% of the variance; however, none of the other main effects were significant. Again, the gender  $\times$  constraints interaction was significant, contributing about 6% to the variance in intrusive thoughts. To examine the direction of the interaction effects, we plotted the regression lines as

recommended by Aiken and West (1991). As can be seen in Figs 1 and 2, men had higher levels of mood disturbance and intrusive thoughts when they perceived high constraints from their spouse/partner, whereas women exhibited little or no increase in distress with increased constraints. Indeed, men who perceived high levels of social constraints exhibited the highest levels of distress relative to the other patients in the study. When spousal constraints were perceived to be low, both men and women exhibited relatively low levels of distress.

The multiple regression analyses were repeated using social constraints from others as the predictor variable. Significant main effects were observed for age and constraints on POMS mood disturbance, explaining 5% and 13% of the variance, respectively. The constraints  $\times$  gender interaction did not approach significance in this case. Similar findings were observed when intrusive thoughts were used as a dependent variable, with significant main effects for age and constraints (6% and 15% of the variance explained), but no significant interaction.

Finally, we were interested in examining whether emotional expressivity may account for gender differences in the relations between constraints and distress. Correlations revealed no significant associations between emotional expressivity and social constraints or distress measures (see Table 2), thus no further analyses were necessary.

**Table 4.** Multiple regression of each dependent variable on age, gender, social constraints (partner) and gender by constraints cross-product

Social constraints (partner)	$R^2$	$\Delta R^2$	$\beta$	$F$	d.f.
POMS					
1. Age	.05	.05	-.23	4.25*	1,79
2. Gender	.07	.02	.17	2.04	1,78
3. Social constraints (partner)	.21	.14	.38	12.96**	1,77
4. Gender $\times$ constraints	.26	.05	.29	5.14*	1,76
Intrusive thoughts					
1. Age	.06	.06	-.25	5.47*	1,79
2. Gender	.10	.04	.20	2.90	1,78
3. Social constraints (partner)	.12	.02	.16	2.10	1,77
4. Gender $\times$ constraints	.18	.06	.30	5.00*	1,76

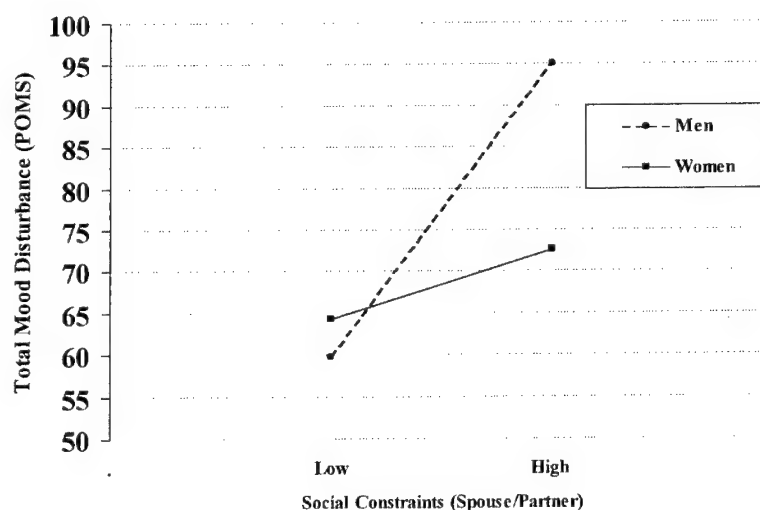
\* $p < .04$ ; \*\* $p < .001$ .

## Discussion

The present study examined gender differences in general emotional expressivity, perceived social barriers to emotional expression (social constraints) and relations between these constraints and distress among patients diagnosed with cancer. Results showed a trend towards greater emotional expressivity in women as compared to men. There were no significant differences between men and women in their perceptions of perceived social constraints from spouse/partner or others. Men experienced significantly higher levels of distress in association with social constraints from spouse/partner than did women; however, there were no gender differences in distress in association with constraints from other sources.

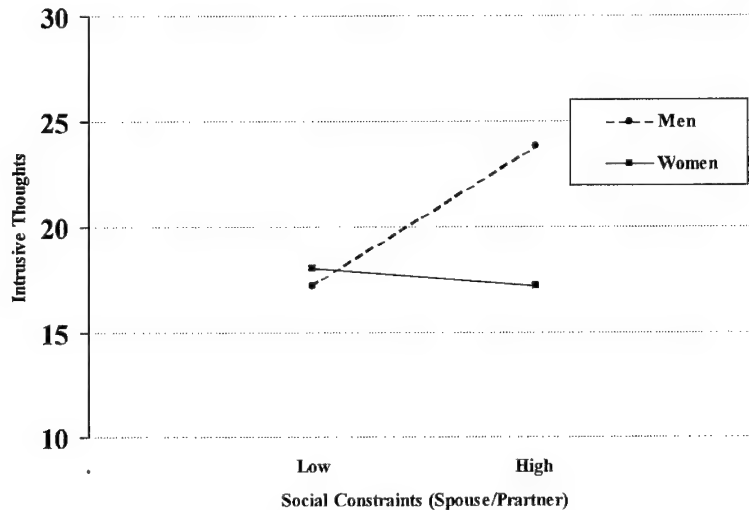
**Table 5.** Multiple regression of each dependent variable on age, gender, social constraints (others) and gender by constraints cross-product

Social constraints (others)	$R^2$	$\Delta R^2$	$\beta$	$F$	d.f.
POMS					
1. Age	.05	.05	-.23	4.25*	1,79
2. Gender	.07	.02	.17	2.04	1,78
3. Social constraints (others)	.20	.13	.39	12.50**	1,77
4. Gender $\times$ constraints	.22	.02	.17	1.66	1,76
Intrusive thoughts					
1. Age	.06	.06	-.25	5.47*	1,79
2. Gender	.10	.04	.20	2.90	1,78
3. Social constraints (others)	.25	.15	.42	15.19**	1,77
4. Gender $\times$ constraints	.25	.00	.09	.54	1,76

\* $p < .04$ ; \*\* $p < .001$ .**Figure 1.** Interactions between gender and perceived social constraints from spouse/partner on total mood disturbance scores of the Profile of Mood States. Low = - ISD, High = + ISD.

Previous studies have shown that women tend to be more emotionally expressive than men and the present findings showed a similar trend in a sample of cancer patients. However, the findings also corroborated previous contentions that this gender difference is relatively small and may be of little consequence for clinical interventions. More importantly, this did not translate into lower reporting of mood disturbance and intrusive cognitions in male patients as there were no significant gender differences on these scores. The few studies that have focused on gender differences in distress in cancer patients have shown inconclusive results. While some found women to report higher levels of distress and depression, which may be due to gender differences in reporting of negative emotions (see Keller *et al.*, 1996), others found no gender differences in distress (e.g., Cassileth *et al.*, 1985). As has been suggested by other





**Figure 2.** Interactions between gender and perceived social constraints from spouse/partner on intrusive thoughts. Low = - ISD, High = + ISD.

authors, gender differences in emotional disclosure are not as large as theory and stereotype might have it and may thus be of little practical value (Dindia & Allen, 1992). It may be more productive to examine the conditions under which emotions are expressed or inhibited by men and women and the psychological consequences that ensue from such expression or inhibition.

The present study therefore examined barriers to emotional expression afforded by the social environment, specifically social constraints that inhibit patients' expression of emotions regarding their cancer experience. Interestingly, we observed no significant gender differences in perceptions of such barriers from spouse/partner and other support sources. This is compatible with previous findings on perceptions of spouse criticism (Manne, Pape, *et al.*, 1999) and demandingness (Lynch, 1998), two other forms of negative social interactions. Based on the assumption that men do not wish to express their emotions, one may have expected lower perceptions of constraints on expression as this may not be something that is viewed as problematic in patients who have relatively little desire to talk about their cancer experience. However, our data suggest that, in fact, men who are dealing with the stress of cancer may perceive similar constraints. Gender differences in the need and desire of cancer patients to express their emotions about their cancer experiences should be more directly assessed in future studies.

The most interesting finding in this study is that men experienced higher general mood disturbance and intrusive thoughts about cancer when confronted with social constraints from their spouse than did women. No such gender differences were observed when constraints from other sources were considered. One explanation for this can be found in the social support literature. Research has shown that men tend to derive greater support from their spouses than women and that they are less likely to have a confidante other than their spouse (e.g., Keller *et al.*, 1996). Thus, men tend to have their spouse or partner as their sole source of emotional support to whom they will express their thoughts and emotions regarding stressful experiences. Consequently, men may be particularly distressed when they perceive that their spouse is unavailable

or responds in a negative and unhelpful manner to their efforts at expressing their emotions regarding their illness. Since women, on the other hand, do not necessarily consider their spouse or partner as their primary confidant, constraints from that source may not be as distressing to the female cancer patient. In addition, as women tend to have a number of other sources of support (e.g., friends), they may be more likely to fall back on other confidants outside the conjugal relationship when they perceive constraints from their spouse/partner.

Conversely, because women are thought to seek support from individuals outside the dyadic relationship, we expected women to have higher distress than men when perceiving high constraints from other individuals in their support network. Interestingly, we found no gender differences in distress, suggesting that male and female patients may be equally affected by constraints from others. The main effects in fact suggest that social constraints from others were associated with heightened distress regardless of the patient's gender. We can only speculate on the reasons for this. It is possible that cancer patients seek support from various sources and that this is not a gender-specific phenomenon. Therefore, perceptions of negative responses may be equally associated with distress in both genders. Because we assessed social constraints across a variety of sources of support (other than spouse) we were unable to separate constraints from friends, family members, co-workers or other important sources which would have allowed us to examine whether constraints from one support source may be compensated by support from another. In fact, studies have suggested that support from one source can buffer the distress associated with constraints from another source (e.g., Lepore, 1992). It is possible that a more detailed analysis of individual support provision would have shed light on additional gender differences. Because our measure of social constraints from 'others' was very general, the lack of a significant gender difference in distress in association with this measure should be interpreted with caution and is perhaps less conclusive than our finding regarding constraints from spouse.

Finally, we argued that the relationship between social constraints and psychological adjustment may be partly dependent on the individual's tendency for expression, such that individuals who have a greater tendency to express themselves and thus have greater needs for support and encouragement in expression may be more likely to be adversely affected by social constraints. Given that women have a slightly higher dispositional tendency to express their emotions, this may therefore have presented an alternative explanation for gender differences in the relations between constraints and distress. However, we found that men reported higher distress in association with constraints than did women and that expressivity was not significantly associated with constraints or distress. We therefore conclude that expressivity did not influence the results in this study. It should be noted that the measure we used was one of general expressivity and a measure of cancer-specific emotional expression may have yielded different results.

Interpretation regarding the direction of causality of our findings has the same limitations as those of any cross-sectional study. An alternative explanation for our findings should thus be borne in mind. Specifically, elevated distress may lead to higher levels of perceived social constraints from the partner. It is conceivable that this association may be greater in men because of gender role expectations regarding social support or because men express their distress in a manner that causes withdrawal of support from the spouse. A further alternative explanation may be that both self-reported distress and self-reported social constraints may be caused by a third variable. If this were the case, this third variable would appear to have greater influence in men

than in women. While these are important alternatives to consider, only prospective or experimental studies may be able to compare these alternative hypotheses. However, our interpretation of the current findings is sufficiently compelling to provide a basis for future research on gender differences in the effects of social barriers to emotional expression in cancer patients. Prospective studies will help in uncovering the mechanisms by which men and women are affected by these barriers. Recent data suggest that avoidance of cancer-related cognitions may play a role in the detrimental effects of social constraints on cancer patients' emotional well-being (Ramati & Zakowski, 2001). The present study was not able to address the reasons for social constraints or potential mechanisms for their relations with distress. It is conceivable that men have higher expectations of support from a female spouse than do women from a male partner. Thus, men may be more disappointed by their wife's negative responses than are women because women do not expect as much support from their husband. Research on social support has also raised the question of whether gender differences in the effects of support are due to gender of the recipient or gender of the support provider. For example, one experimental study suggested that support provided by women was more effective in mitigating distress than support provided by men regardless of the recipient's gender (Glynn, Christenfeld, & Gerin, 1999). Similarly, it could be argued that negative responses from a woman have a greater impact than negative responses from a man, regardless of the recipient's gender. Future studies could address this issue by examining perceived barriers from specific male and female sources of support in addition to the spouse/partner.

The main variable of interest in this study was the patient's perception of social barriers to expression. This is based on the notion that it is the subjective appraisal of a situation rather than its objective characteristics that determine an individual's psychological well-being (e.g., Lazarus & Folkman, 1984). A question that is of some practical importance for psychological interventions is whether the patient's perception of constraints is in fact an accurate reflection of the partner's actual behaviours. There is some research to suggest that this may be a difficult question to answer. For example, one study showed that couples largely disagreed on their perception of open communication with each other regarding the patient's cancer (Keller *et al.*, 1996), suggesting that perceptions of constraints are highly idiosyncratic and subjective.

The gender differences seen in this study may be due to the fact that men and women had been diagnosed with different types of cancer. We chose gynaecological and prostate cancer patients because of the similarities in some of the issues that these patients are facing, including problems regarding sexuality, which would be particularly relevant to their relationship with their spouse/partner. Relevant to this issue is the observation that there were no systematic gender differences in ascertainable disease characteristics and, perhaps more importantly, there were no significant gender differences in perceived social constraints, moods and cancer-specific intrusive thoughts. This suggests that the men and women in this study may be quite similar in their illness experience and the possible confound of cancer type may be of lesser concern. While future studies could compare men and women afflicted with the same type of cancer, it may be argued that even when diagnosed with the same cancer type, men and women may be affected in different ways both physically and psychologically, despite the comparability of the medical diagnosis.

Another question to be raised regards a possible self-selection bias. One should consider the possibility that a study that examines psychosocial issues in cancer may discourage men who prefer not to discuss their emotions from participating. Indeed, we

found that more men than women declined participation (34% and 12.5%, respectively). There were no ascertainable differences in reasons for refusal and the differential rate could have been due to a variety of factors including patient's rapport with the referring physician and recruitment procedures at different hospitals. Selection biases are a concern in any type of study that examines individual differences and are difficult to circumvent.

The findings from the present study contribute some important insights into the needs of cancer patients to communicate their emotions regarding their illness. Previous research has shown that men are less likely in general to express their emotions. While it is often concluded that men *prefer* not to express their emotions and are thus less likely to seek opportunities in their social environment for such expression (e.g., confidants, support groups), little empirical evidence exists for this point of view. The present study in fact suggests that men may be particularly vulnerable to social constraints from their spouse or partner. The findings from this study point to the importance of further research examining the needs for emotional expression in male as in female cancer patients. If further studies support the idea that emotional expression needs are not met by the patients' social support network, interventions designed to help patients communicate their emotions both in the dyadic relationship as well as with other sources of support may prove to be helpful. In addition, it may be important to include the partner in the intervention to increase his/her awareness of the patient's need for talking about the cancer experience. Furthermore, patients may benefit from interventions that help them identify additional sources of support in cases where the spouse/partner is unable to act as a consistent support provider. Future studies should examine the various reasons for social barriers to expression such that interventions can target those barriers more effectively.

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### References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park: Sage.
- Baider, L., Kaufman, B., Peretz, T., Manor, O., Ever-Hadani, P., & Kaplan de-Nour, A. (1996). Mutuality of fate: Adaptation and psychological distress in cancer patients and their partners. In L. Baider, C. L. Cooper, & A. Kaplan De-Nour (Eds.), *Cancer and the family* (pp. 173-186). Wiley.
- Berkman, L. F., Leo-Summers, L., & Horwitz, R. I. (1992). Emotional support and survival after myocardial infarction. *Annals of Internal Medicine*, 117, 1003-1009.
- Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda County residents. *American Journal of Epidemiology*, 109, 186-204.
- Bloom, J. R. (1986). Social support and adjustment to breast cancer. In B. L. Andersen (Ed.), *Women with cancer: Psychological perspectives* (pp. 204-229). New York: Springer Verlag.

- Cassileth, B. R., Lusk, E. J., Strouse, T. B., Miller, D. S., Brown, L., & Cross, P. A. (1985). A psychological analysis of cancer patients and their next-of-kin. *Cancer*, 55, 72-76.
- Dakof, G. A., & Taylor, S. E. (1990). Victims' perception of social support: What is helpful from whom? *Journal of Personality and Social Psychology*, 58, 80-89.
- Dindia, K., & Allen, M. (1992). Sex differences in self-disclosure: A meta-analysis. *Psychological Bulletin*, 112, 106-124.
- Edwards, A. C., Nazroo, J. Y., & Brown, G. W. (1998). Gender differences in marital support following a shared life event. *Social Science and Medicine*, 46, 1077-1085.
- Glynn, L. M., Christenfeld, N., & Gerin, W. (1999). Gender, social support, and cardiovascular responses to stress. *Psychosomatic Medicine*, 61, 234-242.
- Greenwald, M. K., Cook, E. W., & Lang, P. J. (1989). Affective judgment and psychophysiological response: Dimensional covariation in the evaluation of pictorial stimuli. *Journal of Psychophysiology*, 3, 51-64.
- Gross, J. (1989). Emotional expression in cancer onset and progression. *Social Science and Medicine*, 28(12), 1239-1248.
- Gross, J. J., & John, O. P. (1995). Facets of emotional expressivity: Three self-report factors and their correlates. *Personality and Individual Differences*, 19, 555-568.
- Harrison, J., Maguire, P., & Pitceathly, C. (1995). Confiding in crisis: Gender differences in pattern of confiding among cancer patients. *Social Science and Medicine*, 41, 1255-1260.
- Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of events scale: A measure of subjective stress. *Psychosomatic Medicine*, 41, 209-218.
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science*, 241, 540-545.
- Keller, M., Henrich, G., Sellschopp, A., & Beutel, M. (1996). Between stress and support: Spouses of cancer patients. In L. Baider, C. L. Cooper, & A. Kaplan De-Nour (Eds.), *Cancer and the family* (pp. 187-223). Wiley.
- Kirschbaum, C., Klauer, T., Filipp, S., & Hellhammer, D. H. (1995). Sex-specific effects of social support on cortisol and subjective responses to acute psychological stress. *Psychosomatic Medicine*, 57, 23-31.
- Kring, A. M., & Gordon, A. H. (1998). Sex differences in emotions: Expression, experience, and physiology. *Journal of Personality and Social Psychology*, 74, 686-703.
- Kring, A. M., Smith, D. A., & Neale, J. M. (1994). Individual differences in dispositional expressiveness: Development and validation of an emotional expressivity scale. *Journal of Personality and Social Psychology*, 66(5), 934-949.
- Lazarus, R. S., & Folkman, S. (1984). *Stress appraisal and coping*. New York: Springer Publishing.
- Lepore, S. J. (1992). Social conflict, social support, and psychological distress: Evidence of cross-domain buffering effects. *Journal of Personality and Social Psychology*, 63, 857-867.
- Lepore, S. J., & Helgeson, V. S. (1998). Social constraints, intrusive thoughts, and mental health after prostate cancer. *Journal of Social and Clinical Psychology*, 17, 89-106.
- Lepore, S. J., & Ituarte, P. H. G. (1999). Optimism about cancer enhances mood by reducing negative social interactions. *Cancer Research Therapy and Research*, 8, 165-174.
- Lynch, S. A. (1998). Who supports whom? How age and gender affect the perceived quality of support from family and friends. *The Gerontologist*, 38, 231-238.
- Manne, S. (1998). Cancer in the marital context: A review of the literature. *Cancer investigation*, 16(3), 188-202.
- Manne, S. L., Alfieri, T., Taylor, K. L., & Dougherty, J. (1999). Spousal negative responses to cancer patients: The role of social restriction, spouse mood, and relationship satisfaction. *Journal of Consulting and Clinical Psychology*, 67, 352-361.
- Manne, S. L., Pape, S. J., Taylor, K. L., & Dougherty, J. (1999). Spouse support, coping, and mood among individuals with cancer. *Annals of Behavioral Medicine*, 21, 111-121.
- McNair, D. M., Lorr, M., & Droppelman, L. (1971). *Manual: Profile of mood states*. San Diego: Industrial Testing Service Inc.

- Northouse, L. (1988). Social support in patients' and husbands' adjustment to breast cancer. *Nursing Research*, 37, 91-95.
- Northouse, L. L. (1990). A longitudinal study of the adjustment of patients and husbands to breast cancer. *Oncology Nursing Forum*, 17, 39-43.
- Northouse, L. L., Mood, D., Templin, T., Mellon, S., & George, T. (2000). Couples' patterns of adjustment to colon cancer. *Social Science and Medicine*, 50, 271-284.
- Orth-Gomer, K., Rosengren, A., & Wilhelmsen, L. (1993). Lack of social support and incidence of coronary heart disease in middle-aged Swedish men. *Psychosomatic Medicine*, 55, 37-43.
- Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, 8(3), 162-166.
- Ramati, A., & Zakowski, S. G. (2001). *Social constraints, avoidance, and emotional distress among cancer patients*. Presented at the annual meetings of the Society of Behavioral Medicine, Seattle, WA, March.
- Rimé, B. (1995). Mental rumination, social sharing, and the recovery from emotional exposure. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp. 271-291). Washington, DC: American Psychological Association.
- Roberts, C., Cox, C., Shannon, V., & Wells, N. (1994). A closer look at social support as a moderator of stress in breast cancer. *Health and Social Work*, 19, 157-164.
- Schwartz, M. D., Lerman, C., Miller, S. M., Daly, M., & Masny, A. (1995). Coping disposition, perceived risk, and psychological distress among women at increased risk for ovarian cancer. *Health Psychology*, 14, 232-235.
- Stanton, A. L., Danoff-Burg, S., Cameron, C. L., Bishop, M., Collins, C. A., Kirk, S. B., & Sworowski, L. A. (2000). Emotionally expressive coping predicts psychological and physical adjustment to breast cancer. *Journal of Consulting and Clinical Psychology*, 68, 875-882.
- Stroebe, M. S., & Stroebe, W. (1983). Who suffers more? Sex differences in health risks of the widowed. *Psychological Bulletin*, 93, 279-301.
- Turner, H. A. (1994). Gender and social support: Taking the bad with the good. *Sex Roles*, 30, 521-541.
- Wortman, C. B., & Dunkel-Schetter, C. (1987). Conceptual and methodological issues in the study of social support. In A. Baum & J. E. Singer (Eds.), *Handbook of psychology and health* (Vol. V, pp. 63-108). Hillsdale, NJ: Erlbaum.
- Wortman, C. B., & Lehman, D. R. (1985). Reactions to victims in life crises: Support attempts that fail. In S. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory, research, and applications* (pp. 463-489). Dordrecht, The Netherlands: Martinus Nijhoff.
- Zakowski, S. G., Valdimarsdottir, H., & Bovbjerg, D. (2001). Emotional expressivity and intrusive thoughts in women with family histories of breast cancer: Application of a cognitive processing model. *British Journal of Health Psychology*, 6, 151-165.
- Zakowski, S. G., Valdimarsdottir, H. B., Bovbjerg, D. H., Borgen, P., Holland, J., Kash, K., Miller, D., Mitnick, J., Osborne, M., & Van Zee, K. (1997). Predictors of intrusive thoughts and avoidance in women with family histories of breast cancer. *Annals of Behavioral Medicine*, 19(4), 362-369.